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ScienceDirect
Procedia - Social and Behavioral Sciences 159 (2014) 387 – 390
Procedia
Social and Behavioral Sciences

WCPCG 2014

A Structural Equation model of Factors affecting Medicine Profession Burnout

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Abstract

Health Emotional exhaustion, depersonalization and accomplishment are extremely important in mental health in relation to medicine profession. Maslach Burnout Inventory was developed to evaluate an individual's aspects of burnout syndrome. Life satisfaction scale was developed to measure satisfaction grade from daily life. Job affect scale was created to evaluate an individual's general emotional situation during the past week in his work. Job Satisfaction Scale was developed to estimate the general index of job satisfaction. Demands and control scale refers to psychological demands of a job. Finally, Support resources scale was created to measure the numbers of supporting persons and the degree of satisfaction. These are the latent variables associated with profession burnout. The paper reports findings from a survey addressed to a General Hospital in Greece where 50 Doctors participated voluntary. The study examines the validity and reliability of a structural equation model which records the above influential factors on the axis of Medicine Profession Burnout. More specifically, it evaluates construct validity by estimating both convergent and discriminate validity, while evaluating the internal consistency of the instrument itself, and estimates how the instrument determines the reasonable relations among the latent factors mentioned above, and how it describes the reasonable results and assigns the quality of data fit within it. Study findings can be used by researchers/doctors and hospital managers to evaluate the effect of these parameters and be aware of the significant role of each one separately in order to be well-prepared and effective at improving working conditions in health professions and motivate doctors for higher achievements.

Peer-review under responsibility of the Academic World Education and Research Center.
Keywords: Factors, affecting, Medicine, Profession, Burnout

1. Introduction

Jimmieson (2000) claimed that the syndrome of burnout is more common in some professions, such as doctors and nurses. Thus, health care professionals who experience emotional exhaustion also feel emotionally "parched"

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Peer-review under responsibility of the Academic World Education and Research Center.
doi:10.1016/j.sbspro.2014.12.393

and frustrated by the events of the day (Burke & Greenglass, 2001). Doctors who suffer from burnout syndrome become cynical towards death and disability and avoid unpleasant discussions with their patients (Douma, 2013). Maslach, believes that the syndrome is a wear indicator of the values, dignity and the spirit and the will of the employee (Maslach, 1997).

Maslach Burnout Inventory (Maslach & Jackson, 1986) was developed to evaluate an individual's aspect of burnout syndrome and it was used in the present survey. Doctors' Burnout was measured in respect of the other latent variables such as Life Satisfaction, Positive and Negative affect, Job Satisfaction, Demands and Control and Psychological Demands and finally Support Resources.

2. Research methodology

2.1. Sample

The sample of our survey respondents was formed of 50 physicians serving in a General Hospital in Greece, who were asked to respond spontaneously to the survey questionnaire during the academic year of 2012-13. Of these, 20 (40%) were men and 28 (56%) women and two (4%) gave no answer about gender. With respect to age 2 (1.9%) were 20 to 29 years old, 18 (36%) 30 to 39, 22 (44%) 40 to 49, 8 (16%) over 50 years old.

2.2. Research instruments

In the present research six scales were used. 1. The Life satisfaction scale, (8 items, 7-likert scale), 2. The Job Affect Scale (Brief, Burke, George, Robinson & Webster, 1988) (17 items, 5-likert divided into 2 parts: positive affect named JAS-PA (9 items, 5-likert, eg. active) and negative affect named JAS-NA (8 items, 5-likert,eg. hostile). 3. The Job Satisfaction Scale (Brayfield and Rothe, 1951) (translated in Greek by Kafetsios & Loumakou 2007) (18 items, 5-likert, eg. my job is interesting).4. The Maslach Burnout Inventory (Maslach & Jackson, 1986) (22 items, 6-likert, eg. I am full of energy) divided into three parts: Emotional Exhaustion, Depersonalization, and Accomplish. 5. The Demands SCALE- control (18 items, 4-likert, eg. The job requires working very hard). 6. The Modified Job Content (MJC) (7 items, 6-likert, eg. How many people you know well that you can depend on them to help you when you will need help in job matters and to what degree)

2.3. The research methodology

Confirmatory Factor Analysis: In order to investigate the structure of the factors measured with the test of A level KPG test of May 2012in English language a confirmatory factor analysis (CFA) was models of structural equations and the development of a model indicating the relationship between the various factors was attempted and in particular the relationship between the observed variable and the factors. The aim of this confirmatory analysis was to reveal if the latent factors structure' is actually valid and suitable for the measurement of the variables it investigates. It is noted that an instrument of evaluation has valid if the existence of variation is justified in its statements (Anastasiadou et al., 2006). In order to test the model the goodness-of-fit of the research model is estimated.

It is noted that the criteria of acceptance of a model is the comparative fit index (CFI) which is not dependent on the size of the sample and takes values from 0 – 1 (Bentler, 1993, Joreskog et al., 1996) and it must, by agreement, be CFI $\geq$ .9, the index X2/df (X2/df=chi-square to its degrees of freedom ratio) and it must be X2/df<2. Since the ratio X2/df depends on the size of the sample the ratio NNFI (Non-Normed Fit Index) is used, which is independent of the size of the sample (Bentler, 1993) and it must (by agreement) be NNFI>.95. GFI (Goodness of Fit) is used and it must be GFIt>.80, AGFI (Comparative Fit Index) is used and it must be AGFI>.8 and NFI (Normed Fit Index) is used and it must be NFI>.9. In addition, the indexes RMSR (Root Mean Square Residuals) are used and they must (by agreement) be RMSR <.06 and the RMSEA (RMSEA=root mean-square error of approximation) and it must be RMSEA<.06.

3. Results

Measurement Model Fit results: The square roots of all AVEs were larger than correlations among constructs, thereby satisfying discriminant validity (Table 1). Yet, all the inter-construct correlations are below the cut-off point of 0.9, which suggests distinctness in discriminant validity.

Table 1: Inter- construct correlations

	Life Satisfaction	Positive Affect	Negative Affect	Job Satisfaction	Depersonalization	Accomplish	Emotional Exhaustion	Demands-Control	Psychological Demands.
Positive Affect	0.28								
Negative Affect	0.20	0.24							
Job Satisfaction	0.17	0.29	0.21						
Depersonalization	0..19	0.19	0.19	0.26					
Accomplish	0.15	0.16	0.23	0.14	0.27				
Emotional Exhaustion	0.19	0.13	0.17	0.19	0.24	0.24			
Demands-Control	0.11	0.21	0.20	0.17	0.23	0.16	0.25		
Psychological Demands.	0.10	0.17	0.12	0.25	0.16	0.21	0.17	0.27	
Support Resources	0.12	0.19	0.11	0.15	0.24	0.15	0.23	0.12	0.29

In addition, the average extracted variances are all above the recommended 0.50 level (Hair et al. 1998) that implies convergent validity.

Compared to Cronbach's alpha equal to a=0.76, a=0.80, a=0.76, a=0.26, a=0.25, a=0.63, a=0.82, a=0.58, a=0.68 and a=0.92 for the Life Satisfaction, Positive Affect, Negative Affect, Job Satisfaction, Depersonalization, Accomplish, Emotional Exhaustion, Demands-Control and Psychological Demands and Support resources factor.

Composite Reliability relies on actual loadings to compute the factor scores and thus provides a better indicator for measuring internal consistency (Hair, 2005). As shown in Table 2, Composite Reliabilities are above the threshold of 0.7. Overall, the measures in this study are reliable and valid.

Table 2: Composite Reliability (CR) and Average Variance Extracted (VE)

	Composite Reliability (CR>.7)	Average Variance Extracted (AVE>.5)
Life Satisfaction	.775	.695
Positive Affect	.812	.845
Negative Affect	.801	.637
Job Satisfaction	.702	.823
Depersonalization	.701	.691
Accomplish	.735	.673
Emotional Exhaustion	.871	.702
Demands-Control	.804	.673
Psychological Demands	.774	.677
Support Resources	.923	.712

Overall Model Fit results: The hypotheses are tested through structural equation modelling technique (SEM) by LISREL 8.8, software. Model estimation was done using the Maximum Likelihood Estimation, with the item covariance matrix used as input. The indicators were identified on the basis of their loadings. These indicators are associated to their respective latent or unobserved variables to calculate the estimate. The values of SEM are given below (Table 3).

Table 3: Structural Equation Modelling

Values	CFI	X2/df	GFI	AGFI	NFI	NNFI	RMSR	RMSEA
Good fit indexs	.95	1.8	.85	.85	.94	.96	.05	.05

The overall analysis of the model indicates that it is a very good fit (Table 4) (CFI =.95, X2/df =1.8, GFI=.85, AGFI=.85, NFI=.94, NNFI=.97, RMSR=.05, RMSEA=0.05).

In summary, the various measures of the overall model goodness-of-fit lend sufficient support to deeming the results an acceptable representation of the hypothesized constructs (Table 4). In addition the overall model goodness-of-fit results and the measurements model assessments lend substantial support for confirmation of the proposed 5-factor model (Hair, 2005).

4. Conclusions

The main aim of this study was the evaluation of a structural equation model describing doctors' burnout in respect of Life Satisfaction, Positive Affect, Negative Affect, Job Satisfaction, Demands-Control and Psychological Demands and Support resources. The results confirmed reliability and validity of the created model.

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